

**San Diego Metropolitan Area Scenario
SAN DIEGO TROLLEY
IMPLEMENTATION PROCESS EVALUATION
Working Paper Number 2**

San Diego



ASSOCIATION OF
GOVERNMENTS



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February 1982

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San Diego Metropolitan Area Scenario

San Diego County contains over 4,200 square miles in the extreme Pacific Southwest corner of the United States. The urbanized area lies within the western third of the region along the coastal plain and foothills. The eastern two-thirds contain mountains and desert and is, for the most part, in public ownership. San Diego is relatively isolated from the rest of Southern California; with mountains to the east, the ocean to the west and a large military reservation to the north. The southern boundary is the Mexican border, which is not geographically distinct, but presents a strong barrier to travel and economic interaction. Tijuana, immediately south of the border, has a population of over one million persons.

I. POPULATION

In 1980, the total regional population was 1.86 million persons, with over 1.4 million persons living in the San Diego metropolitan area. The urbanized communities of "north county" are economically and culturally distinct from the metropolitan area. Population density is relatively low; 450 persons per square mile for the county as a whole, 1,350 persons per square mile for the metropolitan area.

A. Population Growth

Population growth for San Diego is a relatively new phenomena. Prior to World War II, the total county population was approximately 300,000 persons. With an average growth of 4.2 percent per year over the past 25 years, the San Diego region has been one of the fastest growing metropolitan areas in the U.S. Since 1970, San Diego's growth has been exceeded by only five other major metropolitan areas. Since 1972, San Diego's growth has substantially surpassed state growth, the comparative rates being 3.3 percent per year for San Diego and 1.4 percent for California.

Growth in several years exceeded 50,000 persons annually, while growth in other years was less than 20,000. In 1954, there was actually a decline in population. The swings in growth can, in large part, be explained by a variety of economic factors and other events which occurred as a result of decisions made outside of the San Diego region. For example, the high growth in the early 1950's resulted from the military buildup associated with the Korean War, a period in which military in-service personnel stationed in San Diego increased by almost 120,000 in just two years. The dramatic decline in population in 1954 occurred largely because of a decline in military personnel following the Korean cease-fire. During the late 1950's, a period of above average growth, a dramatic increase in aerospace employment

resulted in an economic boom in the region. The below average population growth during the early 1960's corresponds to a substantial decline in aerospace employment between 1959 and 1964. The increase in military activity resulting from the Vietnam War caused a period of rapid growth during the late 1960's. During the early 1970's, the region's economy was again hit by a downturn in the aerospace industry, which resulted in a period of slower population growth.

Since 1974, the region has experienced the longest period of sustained above average population growth in the past 25 years. During this period, the annual increase in population has averaged over 50,000 per year. Unlike the earlier periods, there is no single major event which can explain this growth. Instead, the growth seems to result from a number of factors, including generally favorable economic expansion, a rapid rate of household formations, and a shift in national migration patterns toward the sun belt.

B. Population Distribution

Urbanization originally occurred in the southwestern portion of the county in the areas surrounding San Diego Bay. In the remainder of the region, small agricultural centers and resort towns developed. These centers have developed as the focal point of suburban development and many have incorporated as cities. The distribution of household population is shown in Figure 1.

Between 1970 and 1980, while the region grew by 73 percent, all major statistical areas (MSA's) gained population, and all cities except one gained population. The MSA's are shown in Figure 2. The central area, which contains the northern portion of the light rail corridor, had the lowest growth; the south suburban area, which contains the remainder of the light rail corridor, had the next lowest growth.

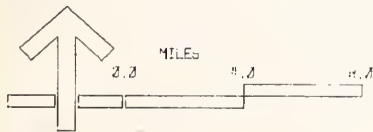
The shift of population to the north is shown in Table 1.

TABLE 1
POPULATION GROWTH
1970-1980

<u>Area</u>	<u>1980 Population</u>	<u>Number</u>	<u>Percent</u>
0 Central	495,500	21,800	4.6
1 North City (Suburban)	436,300	147,900	51.3
2 South Suburban	195,600	56,600	40.7
3 East Suburban	331,300	103,200	45.2
4 North County	389,000	168,700	76.6
5 East County (Rural)	14,100	5,800	69.9
TOTAL COUNTY	1,861,800	504,000	37.1

- 1 - 100 PERSONS
- ▤ 101 - 250 PERSONS
- ▥ 251 - 1000 PERSONS
- ▧ 1001 - 1500 PERSONS
- OVER 1500 PERSONS

FIGURE 1
SERIES V FORECAST
1978 HOUSEHOLD POPULATION



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FIGURE 2
MAJOR STATISTICAL AREAS



C. Demographic Characteristics

San Diego is one of the "sun belt" cities which have experienced significant growth over the past two decades. The demographic characteristics reflect this recent growth along with the strong military presence and retirement migration.

Median Age: Over the past five years, the median age in the region has increased from 28 years to nearly 30 years. When only resident population is considered (i.e., non-military), the median age in 1980 was nearly 32 years.

Population Over 65: The elderly population has been growing more rapidly than the population as a whole; increasing from 9.5 percent of the population in 1975 to 10.9 percent in 1980. There were more than 200,000 seniors in the region in 1980. The elderly population tends to be widely scattered, but significant concentrations are found in Chula Vista, El Cajon, Escondido, Vista, Oceanside, and the central portion of the City of San Diego.

Disabled Persons: It is estimated that there were 73,000 transportation handicapped persons in the region in 1975. Approximately 5,500 of these persons were confined to wheelchairs. The disabled are also found in all parts of the region with some concentrated around municipal centers, particularly downtown San Diego and in lower income areas.

Housing Units: Of the region's 689,000 housing units, 57.5 percent are single-family structures, 36.3 percent are multiple-family and 16.4 percent are mobile homes. In the past five years, multiple-family units have increased at twice the rate of single-family units (5.1%/year vs. 2.7%/year). The vacancy rate is extremely low, 3.0 percent, down from 4.5 percent in 1980.

Population Per Household: In 1980, there were 2.66 persons per household in the region. This is a decrease from 2.72 persons per household in 1975.

Housing Values: Assessor's Market Value of all real estate in 1980 was nearly \$37 billion, and property tax revenues were \$340.3 million. Because of the California Property Tax laws (Proposition 13), property tax revenue declined between 1975 and 1980. Median housing value was \$90,000 in 1980; median rent was \$256/month.

Low-Income Areas: While the regional growth rate has been dramatic since 1970, nearly all of the poverty areas have experienced no growth at all, or a decline in population. Major low-income concentrations in the City of San Diego are found south of Balboa Park extending south to the city boundary and to the east, in the San Ysidro area near the international border, and north of Interstate 8 in the Linda Vista area. All three areas are targets for various rehabilitation, economic development and social service programs of the City of San Diego. In other portions of the county, significant proportions of low-income households are found in Carlsbad, Chula Vista, La Mesa, Coronado, El Cajon, Escondido, Imperial Beach, Oceanside, San Dieguito, Spring Valley, Lemon Grove and National City.

Minorities: Based upon 1970 census data, nearly 20 percent of the residents of the San Diego region are ethnic or racial minorities. Of the minority population, 60.1 percent were Spanish-speaking or Spanish surnamed, 23.3 percent were Black, 5.5 percent were Filipino, 4.8 percent Asian, 2.2 percent American Indian, and the remaining 4.0 percent were from other minority backgrounds. Although this population is generally dispersed throughout the region, some identifiable concentrations do exist. In 1970, 21 of the 318 census tracts had 50 percent or more minority population. Of these, 10 tracts were predominantly Black, seven predominantly Latino, and four had a mix of minority groups. One-half of all the regional minority population in 1970 lived in 59 of the 318 census tracts, while nearly 70 percent of all tracts had at least 10 percent minority population. Large minority populations are found in East San Diego, in several tracts around San Ysidro, and near Camp Pendleton in the City of Oceanside. Tracts which in 1970 had between 30 and 50 percent minority population are located in Centre City San Diego, National City, Castle Park, Linda Vista, Midway, Central Escondido and Central Carlsbad.

In 1978, the Comprehensive Planning Organization conducted an evaluation of how well existing transit was serving minority communities. This study, which included a sample survey of the minority community, determined that the level of transit service provided in minority areas was as good or better than service to non-minority areas. Access to medical facilities, commercial and office centers was found to be good. In general, minority communities had more frequent night and mid-day service. Access to new industrial parks and four-year colleges, however, was found to be difficult from most minority areas. Multiple transfers and long travel times make such trips inconvenient. This is expected to become more and more of a problem as new employment opportunities shift northward.

The low-income segment of the population pays a smaller portion of its income for tax subsidy of transit than do the wealthy. Regular transit users who are poor, however, pay a higher percentage of their income for transit than more wealthy transit users. The subsidy per passenger on routes serving non-minority areas is also considerably higher than the subsidy in minority communities. The "flat" fare structure tends to favor the farther-out, predominantly non-minority areas, and few express routes serve outlying minority areas. Routes which are operating with capacity or overcapacity loads occur more frequently in minority areas.

The rate of transit use in the minority communities was very high, 14 percent of the households surveyed used transit as their principal travel mode. Of those who indicated they did not use transit, important reasons were lack of knowledge of routes and service, and cultural and language barriers, particularly among Filipinos and Latinos.

Automobile Ownership: Only 11.6 percent of the region's households have no vehicles, while over half have two or more vehicles. Vehicle ownership by housing type is shown in Table 2.

TABLE 2

MOTOR VEHICLE OWNERSHIP

	<u>Zero</u>	<u>One</u>	<u>Two or More</u>	<u>Vehicles Per Dwelling Unit</u>
Single Family	4.0%	25.3%	70.7%	2.00
Duplex	15.4%	46.1%	38.5%	1.29
Multiple Family	15.5%	55.8%	28.7%	1.20
Mobile Home	12.1%	51.5%	36.4%	1.33
Group Quarters	85.7%	7.2%	7.1%	0.21
All Units	11.4%	35.5%	53.1%	1.64

II. ECONOMY AND EMPLOYMENT

The San Diego economy has diversified significantly from the military and aerospace dominance which characterized it from the 1940's through the early 1960's. Of the 750,000 jobs in the region, 17 percent are military related, 14 percent are manufacturing and 21 percent are tourist related.

During World War II, manufacturing employment nearly doubled, and the military payroll increased over 800 percent. San Diego County has had an historical reliance on the federal payroll and governmental contracts for industrial production. The aerospace decline of the 1960's caused a corresponding large scale unemployment in the County. During this time, civic leaders initiated planning efforts to attract new, less defense-oriented industries. The region had developed industries and services appropriate to its climatic resources of sunshine and mild weather. Today the region's economic base consists of electronics and data processing, oceanics, research and development, diversified aircraft, agriculture, tourism, and other industries. The distribution of employment is shown on Figure 3.

A. Manufacturing

Although lacking suitable raw materials, San Diego has capitalized on its ability to attract skilled labor and has attracted industries with corresponding employment requirements. Recent trends have seen manufacturing employment growing more slowly with increases in services, retail trade, state and local government, and finance/real estate fields.

More than 1,100 manufacturing firms exist in San Diego County. As late as 1970, aircraft production was unquestionably the most significant manufacturing employer (50% of all manufacturing employees). By 1974, employment in the combined electrical and equipment categories was almost equal to aircraft, accounting for nearly 30 percent of manufacturing employment. Manufacturing industries include the aerospace industry, electronics, shipbuilding, machinery, and metal products, apparel, and food processing.

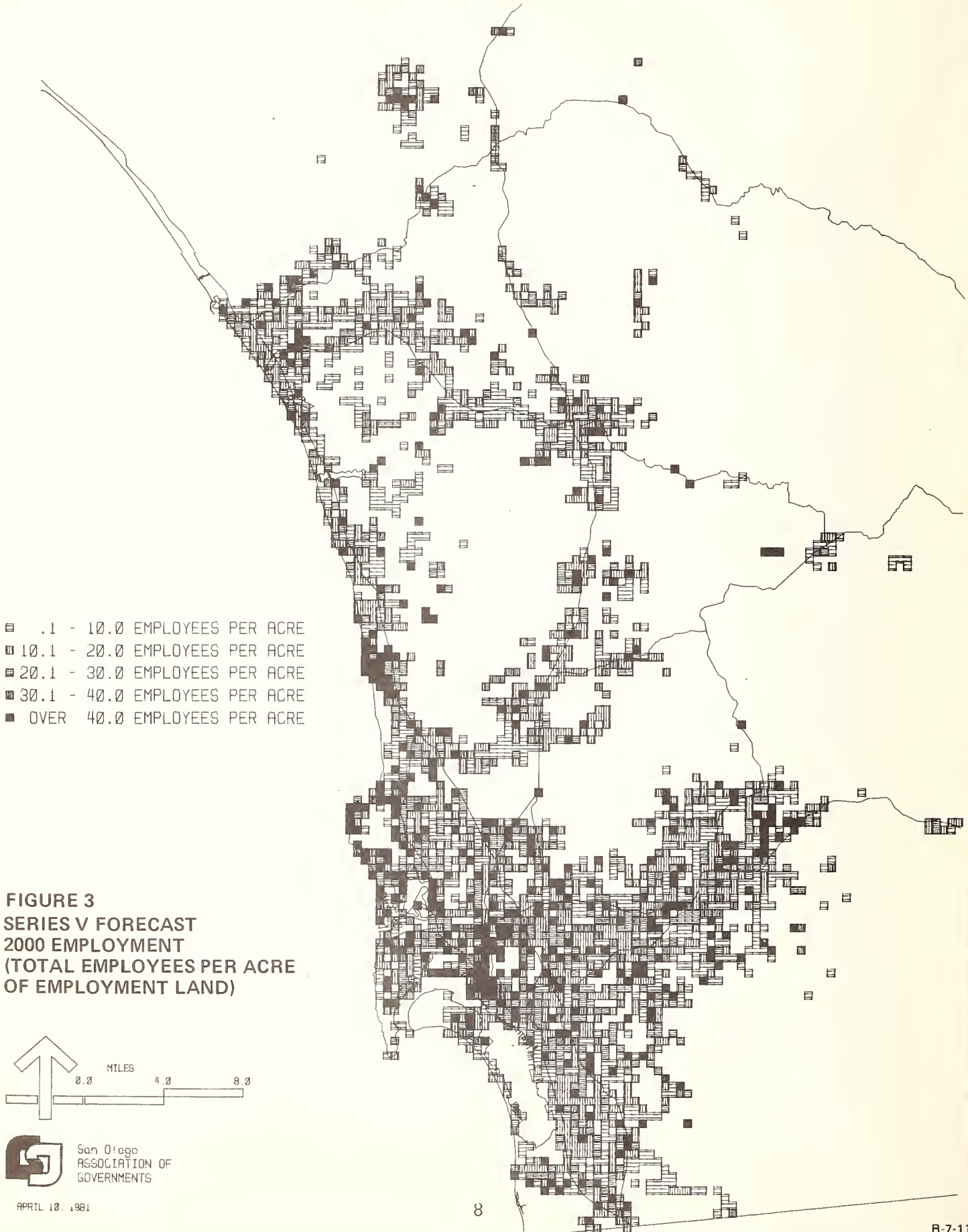
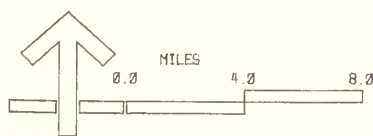


FIGURE 3
SERIES V FORECAST
2000 EMPLOYMENT
(TOTAL EMPLOYEES PER ACRE
OF EMPLOYMENT LAND)



APRIL 10, 1981

B. Service Industries

Service industries add to the region's economic base by bringing in income from outside areas. These industries can be divided into four classes: research and development, tourist, government, and utilities.

Research and development activities are supported by the diverse educational environment provided by the several universities in the area. Those activities of particular importance to the region are health services, oceanography, and nuclear power. The tourism sector supports a visitor industry which has increased dramatically in importance over the past decade. The region's geographic and climatic amenities as well as its existing facilities add to the capabilities for economic benefits from this sector. The various levels of government employ about 25 percent of the civilian labor force. Federal government (excluding uniformed personnel) accounts for approximately one third of all government employment. Although Proposition 13 has affected civil service employment, city and county local governments remain significant sources of employment. San Diego has one of the largest concentrations of military employment, with about 120,000 military personnel attached to the numerous military installations in addition to approximately 30,000 civilian employees. The military, largely the Navy, contributes substantially to the basic economy of the region.

III. PROJECTED GROWTH

The rapid growth that has characterized the San Diego region is expected to continue through the end of the century. Our population increased 37 percent during the last decade; from 1,357,900 in 1970 to 1,861,800 in 1980. One of the fastest growing metropolitan areas in the country, the San Diego SMSA ranked 23rd largest in 1970 and 20th largest in 1980. San Diego is currently the eighth largest city in the United States.

A. Population Growth

Population in the San Diego region is expected to grow at a rate of about 42,000 annually through the year 2000. Total population will increase by 932,100 (54%) in the 1978-2000 period and reach 2,647,200 by 2000. This represents an average compound growth rate of 2.0 percent annually. Considering that the anticipated growth rates for the State of California and the United States are only 1.3 percent and .8 percent respectively, it appears that San Diego will continue to be one of the most rapidly growing metropolitan areas in the country, a trend also characteristic of other "sun belt" regions.

Migration will continue to be the primary contributor to the region's growth, accounting for 78 percent of the total increase between 1978 and 2000. Net migration, averaging 31,700 annually, can be divided into two primary components: retirement-related migration and employment-related migration. Migrants aged 65 and older account for 15 percent of all migrants. Employment-related migration, as the name implies, consists of people in the labor force or those dependent on someone who is. This component of migration is a

function of the number of jobs available and labor market conditions in the region. Natural increase, the difference between births and deaths, will account for only 22 percent of the total projected growth.

B. Distribution of Growth

Growth forecasts have been produced for a variety of geographic areas including cities, subregional areas, and special districts. Those described below are forecasts for six Major Statistical Areas in the region. Major Statistical Areas (MSA's) identify large, generally homogeneous sections of the region. The distribution of anticipated population growth is shown on Figure 4 and Table 3.

TABLE 3
TOTAL POPULATION
1978 - 2000

<u>MSA</u>	<u>1978</u>	<u>1985</u>	<u>1995</u>	<u>2000</u>	<u>% Change 1978-2000</u>	<u>Avg. Annual Compound Growth Rate</u>
Central	452,200	488,000	488,400	494,900	9.4	.4
North City	421,200	518,200	612,900	646,400	53.4	2.0
South Suburban	177,000	217,700	301,300	312,300	76.3	2.6
East Suburban	303,700	372,100	447,200	481,500	58.5	2.1
North County	349,600	472,200	604,900	691,400	97.7	3.2
East County	11,400	14,600	18,800	20,700	81.6	2.8
TOTAL REGION	1,715,100	2,082,800	2,473,500	2,647,200	54.3%	2.0%

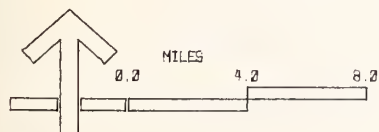
Central San Diego (MSA 0)

Central San Diego will experience the most modest rate of growth in the region. The area is nearly completely built-out, and growth that does occur (9% from 1978-2000) will be due primarily to redevelopment and infilling. The Centre City redevelopment project and other downtown development will have probably the greatest single impact on growth in the Central MSA. The area is forecast to grow by approximately 6,800 housing units and 7,200 jobs by 1985.

It is interesting to note that, while population will increase by 9 percent by the end of the century, the number of occupied housing units will increase by 21 percent during that time. The primary reason for this is that family size and household size are declining and are expected to continue to do so throughout the forecast period. As a consequence, even though a relatively large number of new and redeveloped units are added over the next 20 years, the decline in the size of families occupying the pre-existing units reduces the rate of population increase to about half that of dwelling unit growth.

- POPULATION LOSS
- ▨ 0 - 25 POPULATION INCREASE
- ▩ 26 - 100 POPULATION INCREASE
- ▤ 101 - 250 POPULATION INCREASE
- OVER 250 POPULATION INCREASE

FIGURE 4
SERIES V FORECAST
CHANGE IN TOTAL POPULATION
1978 - 2000



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North City (MSA 1)

The North City area contains a large portion of the City of San Diego, and two other cities. Growth in this area is expected to be 53 percent over the forecast period, from 421,200 in 1978 to 646,400 in 2000.

Employment growth in the North City area has long been and will continue to be high, with a large number of jobs in the industrial sector. North City had 27.2 percent of the region's employment in 1978 and will have 29 percent by 2000. This percentage of the region's employment is exceeded only by Central San Diego (38% in 1978, 32% in 2000).

South Suburban (MSA 2)

Population in the South Suburban area is projected to increase from 177,000 in 1978 to 312,300 in 2000 (76%). Employment will nearly double (from 44,900 in 1978 to 85,900 in 2000), and the area's share of total regional employment will increase slightly, from 7 percent in 1978 to 8 percent in 2000.

Chula Vista, the only South Suburban city with large amounts of vacant land, is forecast to experience significant growth. 40,000 people are projected to be added to Chula Vista's population, mostly in the eastern, presently undeveloped part of the city. Like most other South Suburban and Central San Diego cities, Chula Vista will also experience considerable private redevelopment. Being surrounded by densely populated communities to the north and a burgeoning area to the south, Chula Vista has emerged as a prime location for both residential and industrial development.

All of the South Bay communities will become more attractive through the 1980's and 90's as they represent a major portion of an ever diminishing supply of developable land close to the employment centers of Centre City San Diego and the bayfront industrial areas.

South San Diego City, with a 1978 population of 48,000, will grow to 102,200 by the end of the century. Two major plans of the City are influencing this growth: the Otay Mesa East Community Plan, a large residential development, and the construction of the Brown Field Industrial Park.

East Suburban (MSA 3)

The East Suburban area is forecast to grow at about the same rate as the region as a whole (2.1% vs. 2.0% per year, respectively). This area contains both established suburban cities with significant employment bases, and a rapidly developing urban fringe.

North County (MSA 4)

The North County is expected to be the most rapidly growing area in the San Diego region, with a projected growth rate of 3.2 percent per year through 2000. The large amounts of vacant, developable land in the North County make it a prime location for major development. Additionally, by the early 1990's, developable land in the southern

half of the region will become scarce. This will increase pressure on the available land in North County.

While North County is expected to absorb a large portion of San Diego's future residents, it does not appear that employment growth will keep pace with population increase. Regionwide, population and employment are expected to increase at about the same rate — 2.0 percent per year and 2.7 percent per year, respectively. In North County, the figures are 3.2 percent and 2.7 percent. This means that approximately one of every two employees in the North County currently commutes to the south to work and this situation improves little by the year 2000.

East County (MSA 5)

The East County area, which consists of small mountain and desert communities, is expected to remain entirely rural. Population is forecast to increase from 11,400 in 1978 to 20,700 in 2000, an 82 percent increase.

C. Demographic Changes

Household Size: The population per household in the San Diego region has been declining steadily since the early 1970's. At that time, there were 2.94 people per household, compared to 2.72 in 1978. The drop in household size is expected to continue through the end of the century, down to 2.42 in 2000. There are several reasons for this phenomenon, including low birth rates, changes in the age distribution of the population, and changing marriage and divorce patterns.

Household Growth: A direct result of lower household sizes is a need for more housing units. The number of occupied housing units is projected to increase from 606,100 in 1978 to 1,037,900 in the year 2000. This represents an average net increase in the region's housing stock of 19,800 units per year, or 2.5 percent — significantly higher than the 2.0 percent per year increase in population. Projected household growth is shown in Table 4.

TABLE 4

OCCUPIED HOUSING UNITS 1978 - 2000

<u>MSA</u>	<u>1978</u>	<u>1985</u>	<u>1995</u>	<u>2000</u>	<u>% Change 1978-2000</u>
Central	168,800	190,500	198,100	203,800	20.7
North City	147,300	190,400	234,700	250,400	70.0
South Suburban	58,900	74,000	107,100	113,100	92.0
East Suburban	107,000	135,300	170,000	185,600	73.5
North County	119,400	171,900	236,100	275,000	130.3
East County	4,700	6,500	8,800	10,000	112.8
TOTAL REGION	606,100	768,600	954,800	1,037,900	71.2%

Housing Structure Type: Of the 431,800 housing units forecast to be added by the end of the century, 56 percent will be single-family units and 44 percent will be multiple-family units. This will change the overall housing mix from 66 percent single-family and 34 percent multiple in 1978 to 61 percent single-family and 39 percent multiple in 2000. This change in housing mix will occur partly as a response to smaller household size and also because of high land prices and housing costs.

D. Employment Growth

National and economic developments and trends are reflected to a large degree in San Diego's employment picture. For instance, the drop in the number of jobs added in 1975 came at a time when the nation was experiencing a recession. Since peaking at 41,800 new jobs added annually in the last part of the 1970's, the annual employment change will see a fairly steady decline, leveling off at about 15,000 jobs per year in the 1980's. Wholesale, retail, and service employment are expected to amount to nearly half of all new jobs created in the region during the remainder of the century. Employment growth is shown on Table 5 and Figure 5.

TABLE 5
TOTAL CIVILIAN EMPLOYMENT
1978 - 2000

MSA	1978	1985	1995	2000	% of Region	
					1978	2000
Central	245,100	277,100	304,600	321,000	38.1	31.5
North City	175,400	222,200	274,700	299,200	27.2	29.4
South Suburban	44,900	60,100	76,400	85,900	7.0	8.5
East Suburban	76,800	92,000	115,000	124,300	11.9	12.2
North County	98,800	132,200	162,100	181,400	15.3	17.8
East County	3,400	4,300	5,500	6,100	.5	.6
TOTAL REGION	644,400	787,900	938,300	1,017,900	100.0%	100.0%

IV. EXISTING TRANSPORTATION SYSTEM

The existing transportation system in the San Diego region is comprised of several major components: the highway network, transit services, facilities for nonmotorized travel, airports, seaports and interregional ground transportation. No significant change in the level or method of funding transportation programs in the San Diego region has occurred in recent years. Meanwhile, inflation has caused dramatic increases in construction and operating costs. The passage of Proposition 13 resulted in the loss of some funding for transit, general aviation, road maintenance, and other programs.

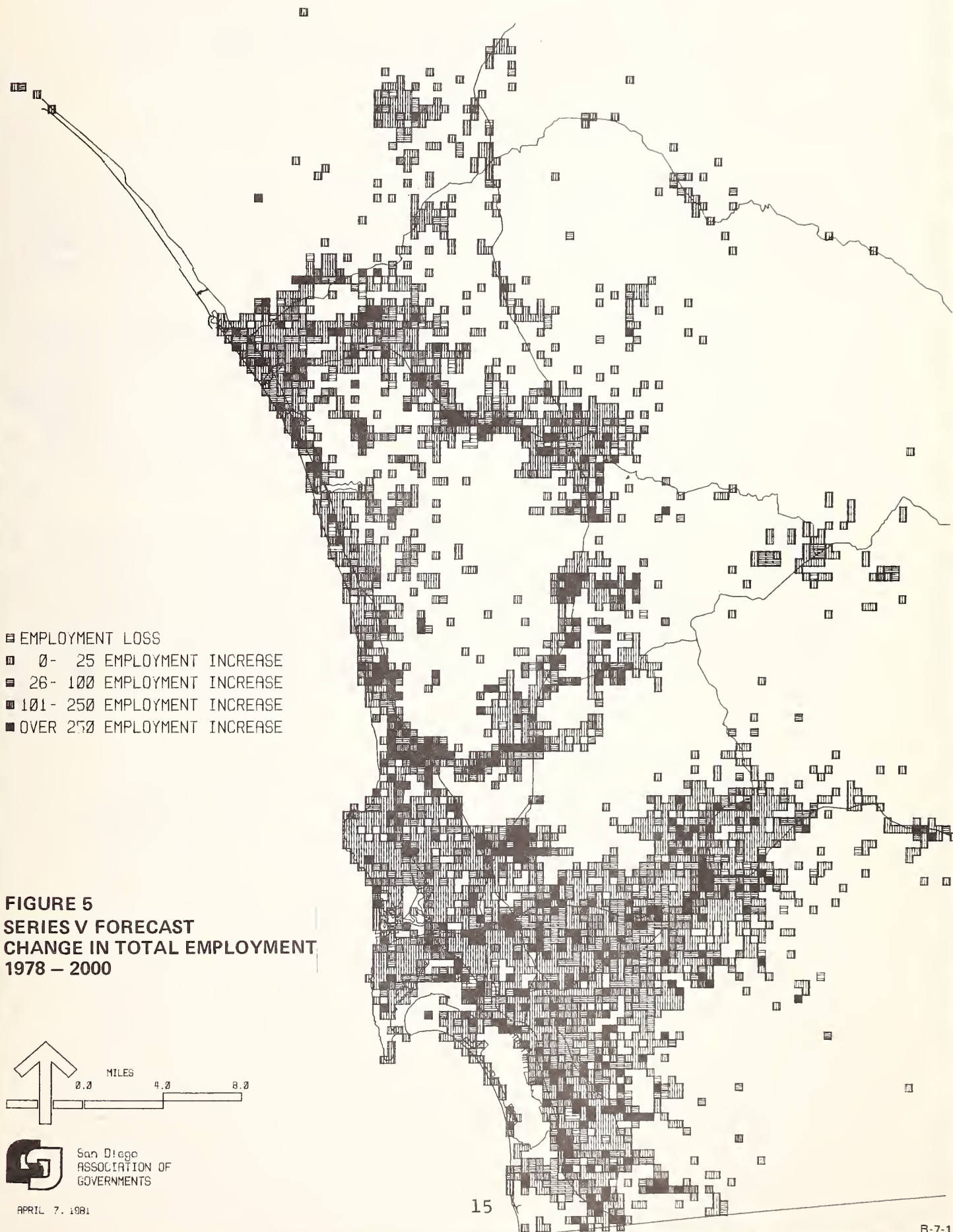
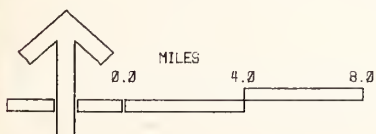


FIGURE 5
SERIES V FORECAST
CHANGE IN TOTAL EMPLOYMENT
1978 - 2000



APRIL 7, 1981

During the period 1955 to 1975, the average annual per capita expenditure for freeway and expressway construction in San Diego County was \$142 (in 1980 constant dollars) compared to \$1.90 for buses and other transit-related capital expenditures. In recent years this pattern has been redirected such that the annual expenditure for freeways and transit is roughly equal to \$42 per capita.

A. Transit

San Diego is a single county region, although the county government itself has a limited role in regional transit planning. In the north county, a single agency has the responsibility for short-range transit planning and transit operations. SANDAG, the Regional Transportation Planning Agency and Council of Governments, is responsible for long-range transit planning throughout the region.

In the San Diego metropolitan area, transit funding and responsibilities are diverse. The San Diego Metropolitan Transit Development Board (MTDB) was created by state law in 1975, with the specific charge to determine feasibility and implement a fixed guideway system in San Diego. Originally, the MTDB was precluded from operating a bus system until a guideway system was in operation. Although this prohibition was removed, MTDB has never exercised this option. In addition, two cities within the metropolitan area, part of a third and several unincorporated communities are not within the MTDB jurisdiction.

Within the metropolitan area, the individual cities receive allocations of state sales tax money on the basis of population to provide transit service. These cities can either contract for transit service with another operator or provide their own intra-city service. There are five fixed-route transit operators, four taxi-based dial-a-ride services, five accessible dial-a-ride services and one light rail service in the metropolitan area. MTDB has short-range planning and coordination responsibility for all of these operations. MTDB and SANDAG must approve the funding for each of these operations.

San Diego Transit Corporation (SDTC), which is owned by the City of San Diego, is by far the largest operator in the region, as shown in Table 6. SDTC provides intercommunity service to most of the other cities in the metropolitan area by contract. It is the only federally funded transit operator in the metropolitan area. All other service is provided by contracts with private-sector operators.

TABLE 6

PUBLIC TRANSIT OPERATORS
(FY81 Statistics)

<u>Fixed-Route Systems</u>	<u># Vehicles</u>	<u># Revenue Passengers</u>	<u># Revenue Miles</u>
San Diego Transit	312	26,131,600	11,320,800
North County Transit District	112	6,000,000	6,700,000
Chula Vista Transit	12	428,800	487,000
National City Transit	8	234,287	232,900
County Transit System	14	395,000	797,400
Rural Bus System	8	13,500	134,500
Strand Express	4	106,500	133,600
San Diego Trolley	14	(Began operations 7/81)	
<u>Dial-A-Ride Systems</u>			
El Cajon Express	20*	196,100	376,000
La Mesa Dial-A-Ride	15*	151,300	327,854
Lemon Grove Dial-A-Ride	3*	37,300	50,100
Coronado Dial-A-Ride	1*	12,700	16,600
<u>Elderly and Handicapped Systems</u>			
San Diego Dial-A-Ride	24	141,900	416,000
Handytrans (Chula Vista)	4	25,200	84,000
Lifeline (North County)	7	20,000	125,000
WHEELS (East County)	6	20,800	165,800
National City Dial-A-Ride	1	(Began operations 10/81)	

*On an as-needed basis.

B. Other Transportation Modes

Highways: There are currently 283 miles of freeways and expressways and thousands of miles of arterial streets in the San Diego region. An estimated 1,100,000 vehicles are registered in the region. Highway improvement programs have not kept pace with the rapid development which has occurred in the past 10 years, resulting in serious peak-hour traffic congestion problems in many locations. Traffic flow improvements or street widening have become necessary in many locations. There is or will be a need for new major roadway links to serve those areas north and east of the City of San Diego which have developed in the past 10 years, or which anticipate major population or employment increases in the near future.

Nonmotorized Travel: The San Diego region has developed more than 200 miles of bikeways. A Bike-and-Ride program is available on six bus routes. This service incorporates special racks attached to buses to carry bicycles.

Airports: The region's existing airport system comprises one major commercial carrier facility, Lindbergh Field; 12 publicly administered general aviation airports; 4 military aviation facilities; and a number of private airports, heliports, and emergency strips. Lindbergh Field is located immediately two miles west of downtown San Diego. Lindbergh Field is currently operated by the San Diego Unified Port District and lies entirely within Port District boundaries. Land use immediately surrounding the airport's 487 acres is highly urbanized.

Ports: Of the 17 major ports on the West Coast of the U.S., San Diego ranks 15th in total tonnage. This is primarily due to the city's low level of freight rail capabilities. The port is hampered by lack of deep channels and turning basins to support larger ships, by inadequate rail service to the eastern part of the County and beyond, and by some technological problems associated with environmental controls. Operation of the port is the responsibility of the San Diego Port District.

Bus and Rail Systems: Interregional travel by bus and rail represents only 5 percent of total regional travel. Greyhound and Trailways are the largest interregional bus carriers and provide service from San Diego to all parts of the country. Rail service is provided by Amtrak between San Diego and Los Angeles. The rail system is accessible within the San Diego region in downtown San Diego, Del Mar, and Oceanside. Over the past few years, interregional rail passenger service has been doubled to six trains a day in each direction. Use of the rail system for transportation between San Diego and Los Angeles has increased significantly since the gasoline shortages in 1979.

V. THE TROLLEY CORRIDOR

The San Diego Trolley is 15.9 miles in length; connecting downtown San Diego to the international border at Tijuana, Mexico. The north end of the line terminates at the Santa Fe (Amtrak) Depot, operates on city streets through Centre City, then through National City, Chula Vista, the unincorporated community of Otay and re-enters the southern portion of the City of San Diego. The City of Imperial Beach lies to the west of the trolley line. The trolley, therefore, serves the southern part of MSA 0 (described above) and the western part of MSA 2. The Light Rail study area is shown on Figure 6. In 1980, 177,000 persons lived in the study area; 9.5 percent of the population of the San Diego region.

Existing Travel Characteristics

Of the 8.3 million person-trips in the region each day, 1.2 million, or 14.5%, occur within the trolley corridor. Within the corridor, approximately 3.6% of all trips are on transit, twice the mode split of the region. Table 7 summarizes the major characteristics:

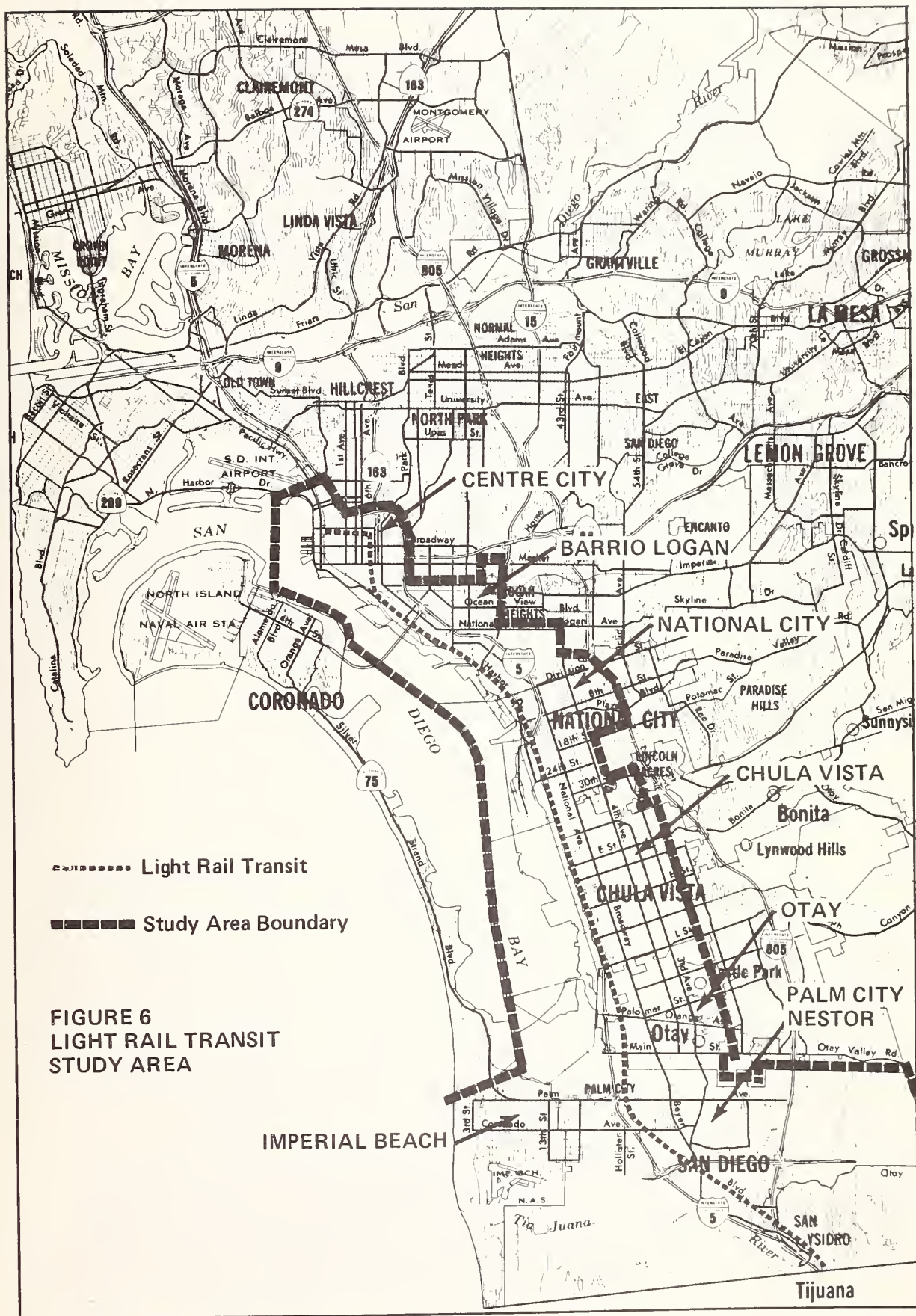


TABLE 7

1980 TRAVEL CHARACTERISTICS

	TRANSIT TRIPS		AUTO TRIPS
	<u>Region</u>	<u>Corridor</u>	<u>Regional</u>
Daily Trips	145,500	40,100	8,000,000
Average Trip Length (Miles)	5.2	5.2	7.1
Average Trip Length (Minutes)	19.2	17.3	9.3
Percent of Trip in AM Peak	22%	22%	8%

The freeway system in the San Diego region is probably the finest in the country. Of a total of 272 miles of freeway in the region, 25.8 miles are located within the corridor. There is no severe congestion in the corridor and only one area of moderate congestion caused by a narrowing of the freeway to cross the Sweetwater River.

The characteristics of transit riders in the South Bay is not significantly different from the region as a whole. Ridership reflects the demographic characteristics in the area, the large military population and the area's proximity to Mexico. Table 8 shows the characteristics of transit riders in the corridor and region. In addition, rider characteristics on the three transit routes which parallel the trolley are also shown.

TABLE 8

TRANSIT RIDERSHIP CHARACTERISTICS
(1979 - 1980)

	<u>Region</u>	<u>Trolley Corridor</u>	<u>Transit Routes</u>		
			<u>29</u>	<u>32</u>	<u>100</u>
Percent Female	51.3%	53.2%	29.2%	48.8%	41.9%
Median Age	33.1	28.9	24.7	35.4	29.6
Median Income (000)	\$9.9	\$9.9	\$10.2	\$8.6	\$12.4
Ethnicity: % Hispanic	18.0%	18.8%	12.2%	56.7%	14.6%
% White	60.3%	58.5%	52.4%	30.0%	68.8%
% Transit Dependent	45.5%	46.2%	49.9%	44.3%	40.5%

Existing Land Use

The light rail corridor impact area covers 38 square miles, or over 24,000 acres. The primary land use is residential (31.2%), followed by agriculture (13.3%) and manufacturing (12.7%). Because the study area is skewed to take in a large part of Otay Mesa, which is currently largely undeveloped, agriculture may seem to account for a disproportion-

ately large share of the corridor land use. However, a significant amount of agricultural land is in close proximity to the trolley alignment.

Commercial land uses, which include both shopping center and strip commercial, make up 9.4% of the area. The balance of the land uses include: federal reservations (11.9%), transportation and utility corridors (11.6%), public and quasi-public (4.4%), water areas (2.7%), wildlands (1.5%), and open space (1.3%).

Specific land use, zoning and general plan designations in the area of the stations have also been collected and mapped.

Employment

Over 20% of the civilian work force is employed in the study area. Table 9 shows that the largest concentration of civilian employees are located in the Centre City area. There are 61,811 Centre City workers. The second largest employment center is in Barrio Logan where 26,046 jobs are provided. An additional 13.3% of corridor area jobs are in Chula Vista and 9.8% in National City.

TABLE 9
CIVILIAN EMPLOYEES BY COMMUNITY
(1980)

<u>Community</u>	<u>Number</u>	<u>Percent of Total</u>	
		<u>Study Area</u>	<u>San Diego Region</u>
Centre City	61,811	46.5	9.6
Barrio Logan	26,046	19.7	4.1
National City	13,000	9.8	2.0
Chula Vista	17,719	13.3	2.8
Otay	3,351	2.5	0.5
Palm City/Nestor	2,033	1.5	0.3
San Ysidro	6,169	4.6	1.0
Imperial Beach	2,857	2.1	0.4
TOTAL	132,986	100.0	20.8

The major categories of employment in the study area are: military, government, service industries, retail trade, and manufacturing. Table 10 shows that 18.8% of those employed are in the military. Local governments and retail trade both employ 12% of the workers. The vocational breakdown varies from community to community. Military employment is heavily concentrated in Barrio Logan and National City, just south of Centre City. Manufacturing employment is concentrated in Barrio Logan and at a single Chula Vista industry, which is located within walking distance of a light rail station.

TABLE 10

EMPLOYMENT BY STANDARD
INDUSTRIAL CLASSIFICATION (SIC)
(Percent of Total)

<u>SIC</u>	<u>Centre City</u>	<u>Total Light Rail Corridor</u>	<u>Region</u>
Agriculture & Mining	0.6	1.0	2.0
Construction	1.5	2.3	5.3
Manufacturing	6.4	15.5	11.5
Transportation, Utilities	8.5	5.2	3.6
Wholesale Trade	6.3	4.9	3.0
Retail Trade	12.9	12.1	16.3
Finance, Insurance, Real Estate	15.9	7.3	4.9
Services	23.6	14.2	18.0
Government:			
Federal, Civilian	5.9	5.9	5.6
Military	1.1	18.8	16.8
State	1.4	0.8	2.5
Local	15.9	12.0	10.5
TOTAL:	100.0	100.0	100.0

Social Characteristics

The 177,000 people living in the study area occupy 57,000 housing units. More than 53% of these are single-family dwellings. The average household size in the study area is 3.1 persons, which is the same as the regional average.

Females comprise a slightly lower percentage (49.2%) of the population in the corridor, than in the region as a whole (50.6%). This undoubtedly reflects the high military presence in the area. The study area has a higher incidence of transportation-handicapped persons than the region as a whole.

Residents of the study area tend to be younger than the population of San Diego County. More than 50% of the study area is under 25 years old, as shown in Table 9. Within San Diego County, less than 40% of the residents fall into this age bracket. Countywide, a larger percent of the residents are age 55 or older.

TABLE 11

AGE DISTRIBUTION

	Age in Years (in total percentages)					
	<u>0-14</u>	<u>15-24</u>	<u>25-35</u>	<u>35-54</u>	<u>55-64</u>	<u>65 or Over</u>
LRT Study Area	28.9	21.2	15.6	19.9	6.8	7.6
San Diego County	22.4	17.4	18.9	22.1	8.8	10.4

In 1980, the median household income was \$14,129 for the San Diego region. Within the study area only the Palm City/Nestor area had a median household income equivalent to the region. Centre City and Barrio Logan report the lowest median household incomes in the study area, as shown in Table 12.

TABLE 12

MEDIAN HOUSEHOLD INCOME
(1980)

<u>Jurisdiction</u>	<u>Income</u>
San Diego Region	\$14,129
Centre City	4,102
Barrio Logan	6,515
National City	9,883
Chula Vista	11,623
Otay	11,253
Palm City/Nestor	
Zone 222	12,695
Zone 223	14,375
San Ysidro	6,548
Imperial Beach	11,263

A total of 81.3% of the residents of San Diego County are White, compared to only 64% of the study area population. Table 13 shows that almost one-fifth of the residents of the study area identified themselves as "Other". An additional 9.3% reported an Asian background. Hispanics comprise 41.3% of the total population in the study area, compared to less than 15% regionwide. Racial and ethnic distribution varies considerably amongst the study area communities.

TABLE 13

RACIAL DISTRIBUTION
(In Total Percentage)

	<u>LRT Study Area</u>	<u>San Diego County</u>
White	64.0	81.3
Other	19.6	7.5
Asian	9.3	4.8
Black	6.5	5.6
Indian	0.6	0.8
Hispanic Ethnicity	41.3	14.8

Table 14 shows that within the study area, the median housing prices in 1980 range from \$39,570 in Barrio Logan to \$79,066 in Chula Vista. The regional average was \$104,205 for a single-family home. Thus, the median housing costs in the study corridor were significantly lower than the regional average.

TABLE 14

AVERAGE SALE PRICE

<u>Year to Date, June 1980</u>	
Barrio Logan	\$ 39,570
National City	56,862
Chula Vista	79,066
Otay	61,497
South San Diego	65,888
Imperial Beach	71,454
San Diego Region	104,205

International Border Characteristics

Almost three million people live in the combined San Diego/Tijuana area, which is one of the fastest growing areas in the world. On a typical weekend day, over 40,000 persons cross the border from Mexico. The following information is based on a non-expanded border crossing survey conducted in 1980.

San Diego County residents account for 38.7% of those people surveyed, as shown in Table 15. A total of 31.4% of the sample were residents of Tijuana and an additional 3.1% were residents from other parts of

Mexico. Almost 22% of the respondents were Californians from outside of San Diego County.

TABLE 15
RESIDENCE OF BORDER CROSSINGS

<u>Residence</u>	<u>Percent of Total</u>
Trolley Corridor	14.0%
San Diego County	38.7%
Tijuana	31.4%
Other California	21.8%
Other U.S.A.	4.1%
Other Mexico	3.1%
Other Foreign Nation	0.9%
TOTAL	100.0%

Although the automobile is the most common access mode to the border, transit carries a significant percentage of border crossing trips, as shown in Table 16. In contrast, less than 2% of the trips in the region are made by transit. As indicated, several private bus operators provide cross-border service, most commonly from Centre City.

TABLE 16
MODE OF ACCESS IN THE U.S.A.

<u>Mode</u>	<u>Percent of Total</u>
Private Vehicle	70.8%
San Diego Transit	12.0%
Walked	12.0%
Private Bus	4.3%
Taxicab	0.8%
Bicycle	0.1%
TOTAL	100.0%

As expected, the residents of the San Diego/Tijuana metropolitan area cross the border more frequently than non-residents. Table 17 shows that 18.4% of the Mexicans and 6.6% of the San Diegans cross the border daily. Approximately 14.5% of the local residents surveyed complete this trip several times per week. Additionally, 27% of the San Diegans and 36.7% of the Mexicans travel across the border at least once a week.

TABLE 17

FREQUENCY OF BORDER CROSSING
(Percent of Total)

Frequency of Crossings	Residence				
	San Diego County	Mexico	Other California	Other U.S.A.	Other Foreign
Daily	6.6	18.4	0.7	2.1	0
Several Times Per Week	14.5	14.4	1.0	0	0
Weekly	27.0	36.7	2.9	0	0
Bi-Monthly	16.6	16.0	11.2	1.4	0
Occasionally	35.3	14.5	84.2	96.5	100.0
TOTAL	100.0	100.0	100.0	100.0	100.0

Table 18 shows that more than 50% of the San Diegans and 72.7% of the Mexicans crossed before noon. In contrast, most visitors to the area cross the border in the afternoon. It is important that none of these peaks occur during normal transit peak periods.

TABLE 18

RESIDENCE BY TIME OF CROSSING

Time of Crossing	Percent of Total				
	San Diego County	Mexico	Other California	Other U.S.A.	Other Foreign
8:00 - 9:59 AM	9.2	20.6	4.3	2.8	3.2
10:00 - 11:59 AM	23.6	31.0	16.0	12.7	16.1
Noon - 1:59 PM	22.2	21.1	29.5	22.5	12.9
2:00 - 3:59 PM	29.4	20.7	31.7	33.8	45.2
4:00 or Later	15.6	6.6	18.5	28.2	22.6
TOTAL	100.0	100.0	100.0	100.0	100.0

As previously noted, 12% of the people used San Diego Transit as their primary mode of travel in the U.S.A. Table 19 shows the time of day when the passengers crossed the border. Almost one third of them crossed between 2:00 PM and 4:00 PM. This coincides with the fact that 45.7% of the pedestrian border crossings occurred during the same period.

TABLE 19

TIME OF CROSSING BY TRANSIT RIDERS

<u>Time</u>	<u>Percent of Total</u>
8:00 - 9:59 AM	9.9
10:00 - 11:59 AM	24.3
Noon - 1:59 PM	22.8
2:00 - 3:59 PM	32.6
4:00 - 6:00 PM	9.7
After 6:00 PM	0.7
TOTAL	100.0

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